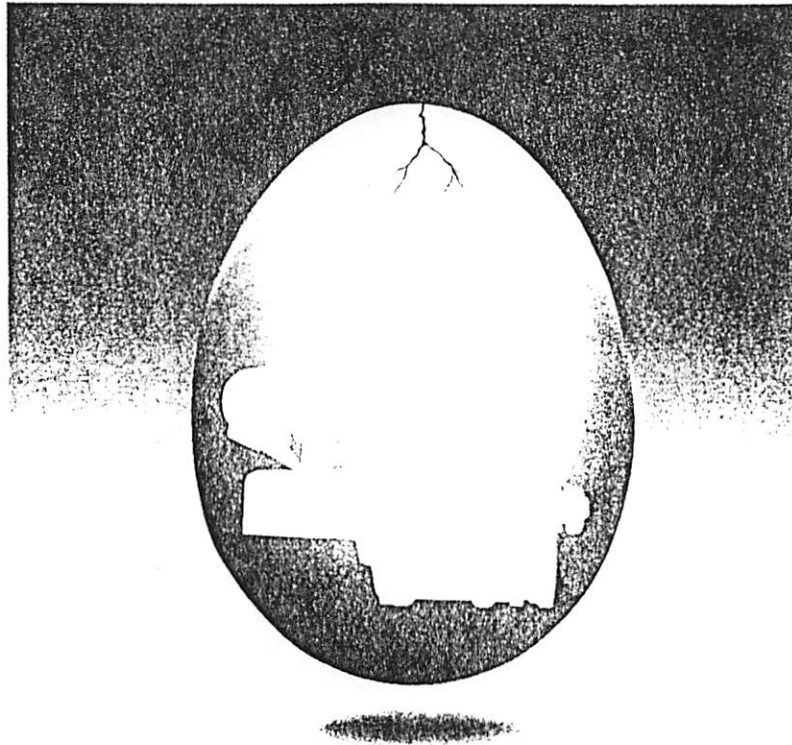


Industrial Sewing Machines

Kansai Special

RX SERIES MECHANICS MANUAL



 MORIMOTO MFG. CO., LTD.

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1. Looper Angle (Refer to Fig 1 & 2)

Fig 1: The correct angle is $2^{\circ}30'$ as demonstrated in Fig1. The tip of the looper should be 1mm to 1.2mm forward of the front edge of the looper at a point measuring 25mm to the right of the tip.

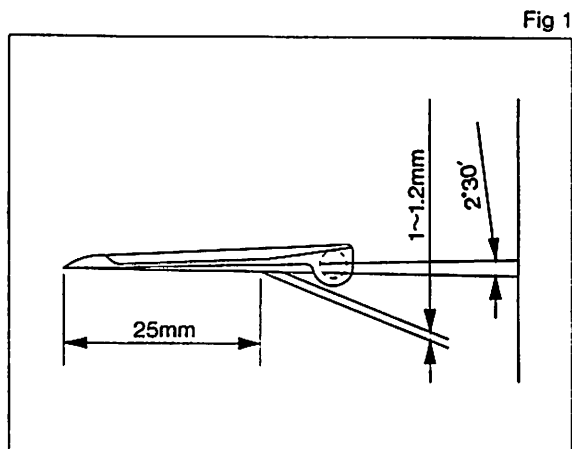
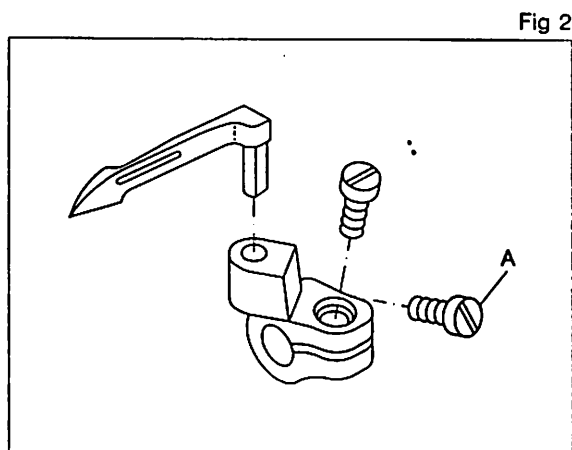


Fig 2: In order to adjust this angle refer to Fig 2. Loosen screw (A) to adjust looper angle.

Note: The standard position is automatically set as long as screw (A) is tightened squarely onto the flat on the looper shaft.



2. Looper Timing (Refer to Fig 3~5)

Fig 3: As the looper moves to the left, behind the needles: As the tip of the looper reaches the center of the left needle, The dimension from the tip of the looper to the top of the eye of the needle should be 1 to 1.2mm.

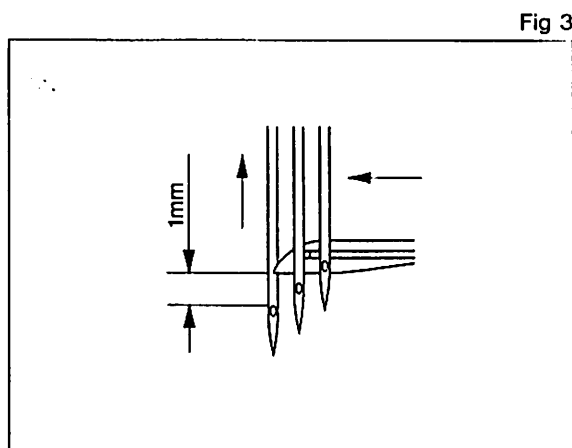


Fig 4: As the looper returns to the right, in front of the needles : As the tip of the looper reaches the center of the left needle, the dimension from the tip of the looper to the top of the eye of the needle should be 0.2mm.

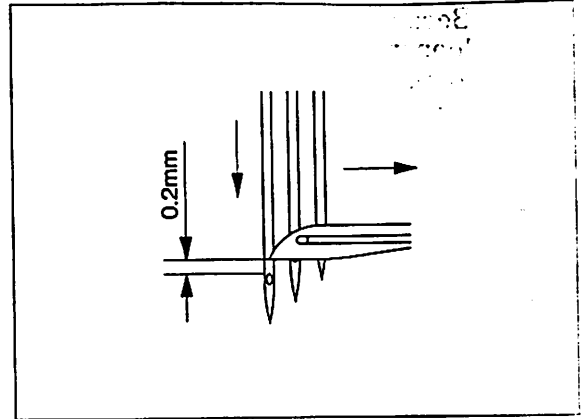


Fig 4

Fig 5: To adjust the timing, loosen screws (A) and shift the position of the upper belt gear by holding the gear in place and turning the handwheel(+) to advance or (-) to retard the looper.

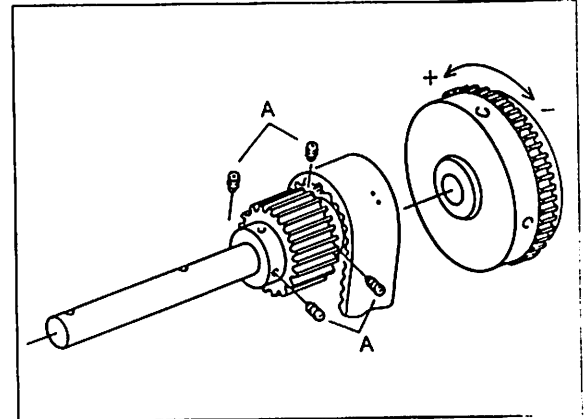


Fig 5

3. Looper-Needle Distance (Refer to Fig 6 & 7)

Fig 6: When the looper is at its far right position, the tip of the looper should be approximately 6.5mm from the center of the needle bar. This dimension is standard for all gauge sizes.

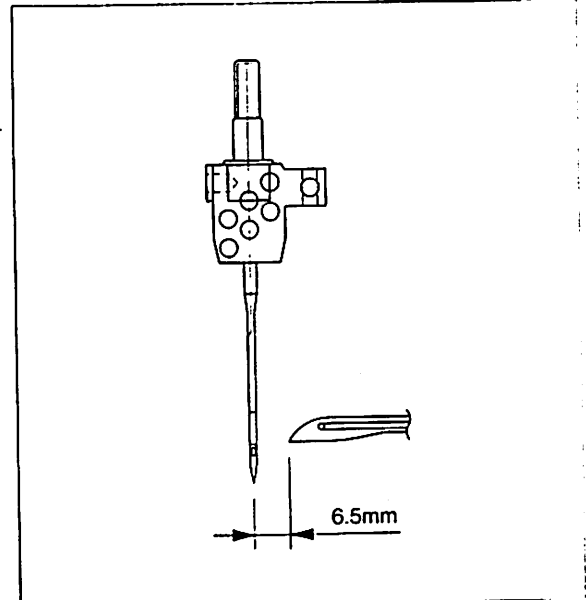


Fig 6

Fig 7

Fig 7: Because it is common practice to measure looper-needle distance from the tip of the looper to the center of the right needle corresponding looper-needle distances for various gauge size are in table 1. To adjust, loosen screw (1) and move looper holder (2) right or left.

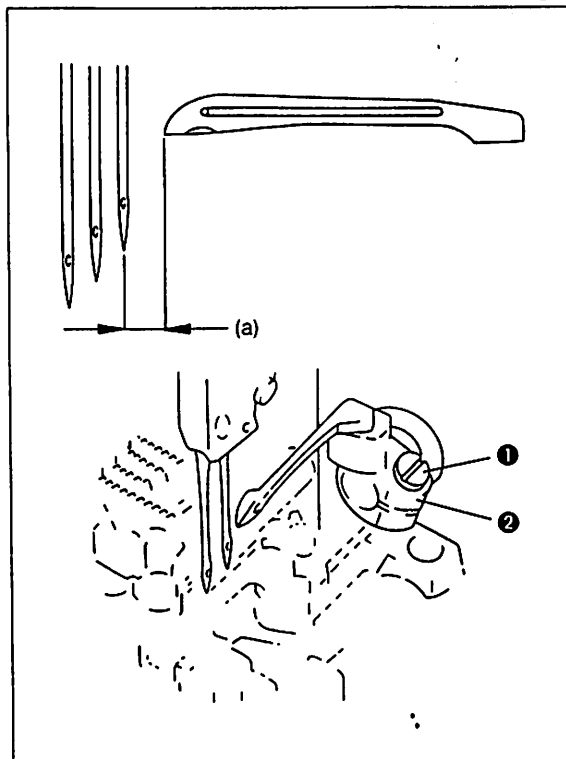


Table 1

Gauge size		"a"
1/8"	3.2mm	4.9mm
5/23"	4.0mm	4.5mm
3/16"	4.8mm	4.1mm
7/32"	5.6mm	3.7mm
1/4"	6.4mm	3.3mm

4. Needle Height (Refer to Fig 8)

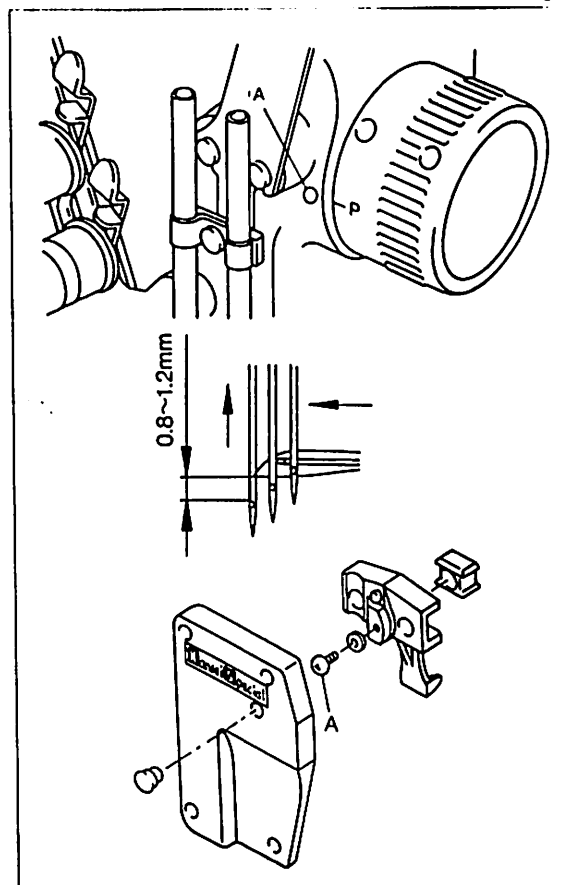
When the needle bar is in its highest position, the mark P on the handwheel should meet the mark A (Refer to Fig 8)

As the looper moves to the left, behind the needles, the tip of the looper reaches the center of the left needle.

At this time, the distance from the tip of the looper to the top of the eye of the left needle must be 0.8 to 1.2mm.

To adjust the height and alignment, loosen screw (A); set correct position; and tighten screw (A). Make sure that the needles are aligned in the center of the needle plate holes.

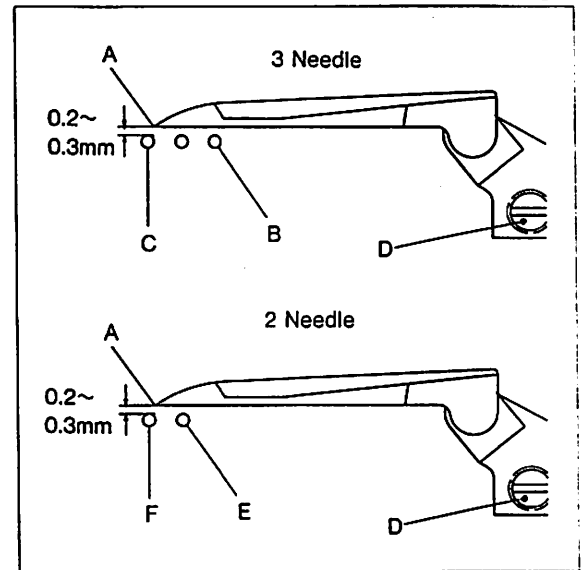
Fig 8



5. Loper-Needle Clearance (Refer to Fig 9)

When the tip of looper (A) meets the left needle (C) the clearance between them should be 0.2mm to 0.3mm. This adjustment can be made by loosening screw (D) on the looper holder, moving the looper frontwards or backwards to the appropriate setting, and retightening screw (D).

Note: As the looper moves to the left, behind the needles, the tip of the looper (A) will contact the right needle slightly (0~0.05mm).



6. Loper Avoid Angle (Refer to Fig 10~13)

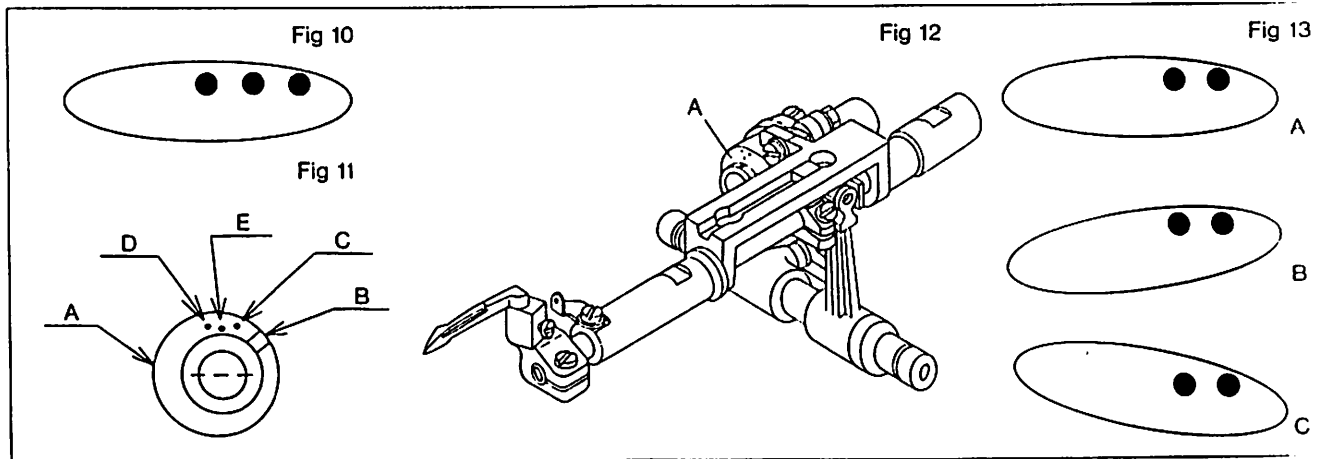


Fig 10: Shows the correct looper motion

Fig 11: Shows avoid eccentric (A), adjustment screw (B), advanced timing mark (C), retarded timing mark (D) and standard timing mark (E).

Fig 12: Shows exact location of the avoid eccentric in relation to the machine.

Fig 13: A - Standard Angle Path
 B - Advanced Angle Path
 C - Retarded Angle Path

7 Setting The Looper Avoid (Refer to Fig 14~15)

Note: The looper avoiding motion requires adjustment when a different diameter needle is to be used.

Fig 14

Fig 14: When the looper moves from its left-most position, deflection of the needle should begin when the tip of the left-most needle is 3.0mm-3.5mm from the looper eye. The contact is from 0.3mm~0.6mm on the back of the looper.

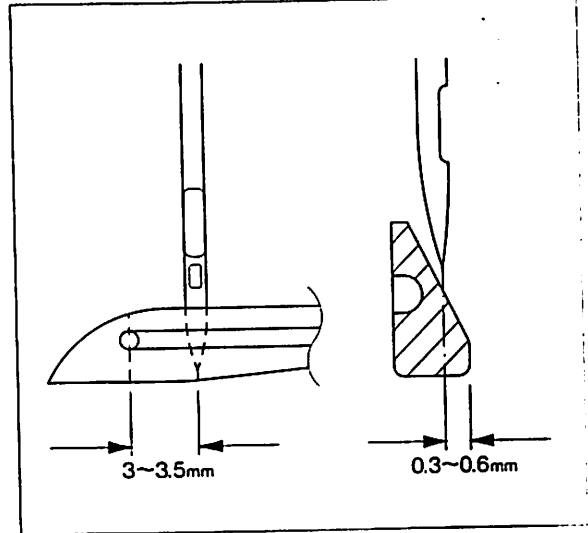
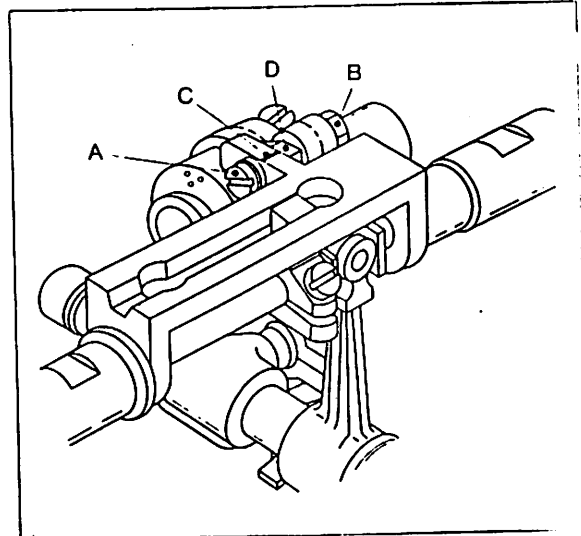


Fig 15

Fig 15: Align dot (D) with mark (C) for standard needles. In the case of extremely fine needles loosen screw (A) and nut (B) and move the dot (D) towards the rear of the machine. In the case of extremely thick needles move dot (D) towards the front of the machine.



8. Rear Needle Guard (Refer to Fig 16~19)

Inc

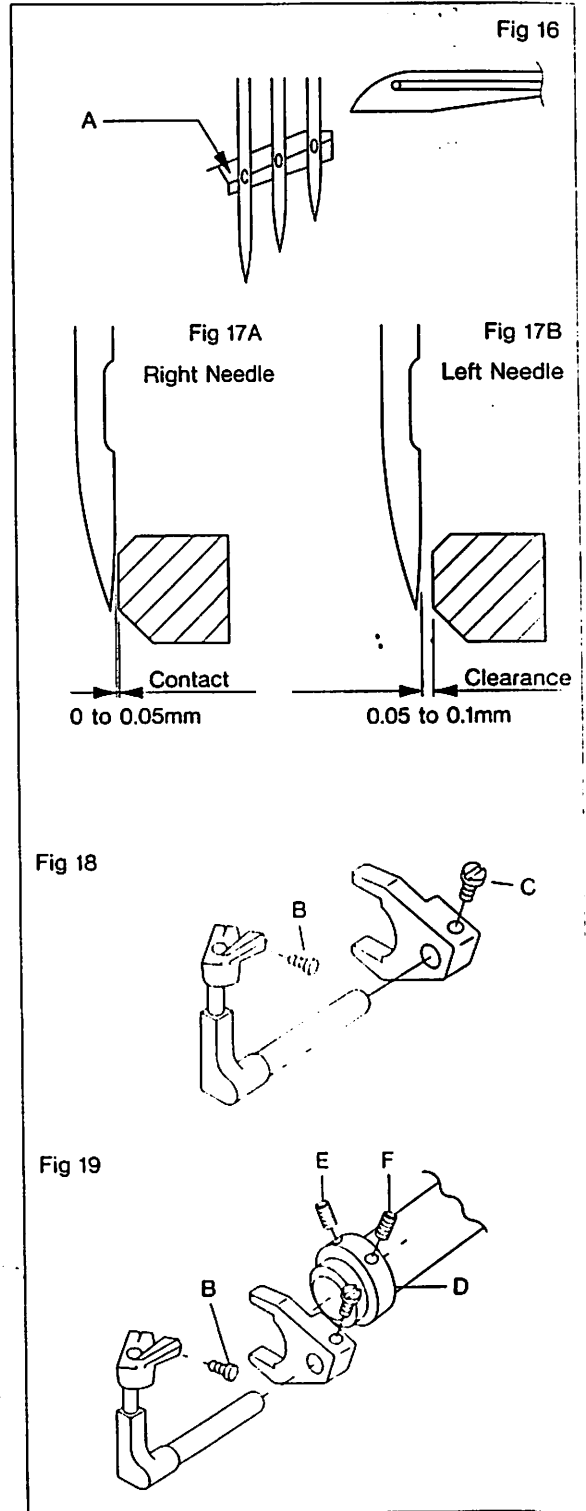
Fig 16: Height Adjustment
With needles in the down position set line (A) of needle guard even with the center of the needle eyes.

Fig 17A: Clearance (Right Needle)
The rear needle guard contacts the right needle slightly (0.0~0.5mm) so the looper will not contact the needle as it moves from right to left.

Fig 17B: Clearance (Left Needle)
The clearance adjustment between the left needle and the rear needle guard is 0.05~0.1mm.

Fig 18: To Adjust
Loosen screw (C) to adjust front-back position. Loosen screw (B) to set height and angle.

Fig 19: Standard setting
Align the mark on eccentric (D) with the mark on the main shaft for standard needle guard timing.



9. Front Needle Guard (Refer to Fig 20~22)

Fig 20: Front Needle Guard Height

Set the contact edge of the front needle guard 1.8 to 2.3mm above the tip of the left needle when the tip of the looper is behind the center of the left needle.

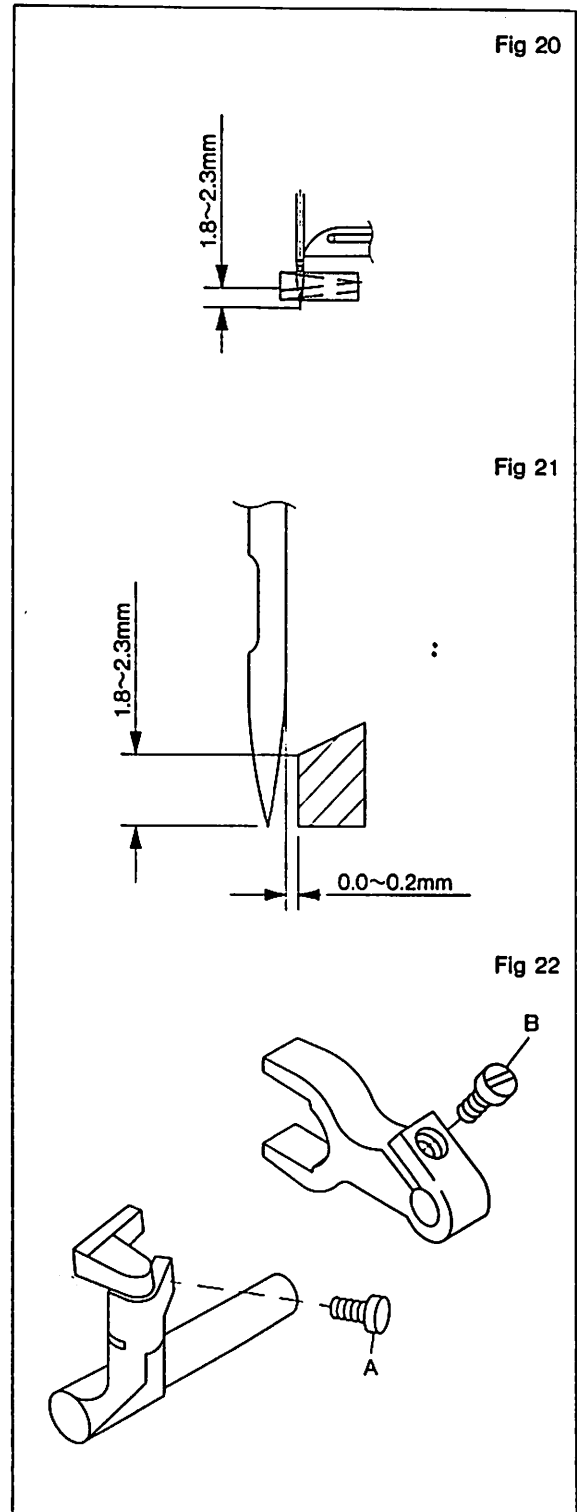
Fig 21: Front Needle Guard Clearance

The clearance between the needles and the front needle guard should be the following:

- A) 0.0~0.05mm for the left needle
- B) 0.1~0.2mm for the right needle

Fig 22: Adjustments

- A) To adjust the height and angle loosen screw (A)
- B) To adjust the front-back position loosen screw (B)



10 Top Cover Spreader (Refer to Fig 23~27)

Fig 23: Screw (A) allows for adjustment of the left most position. Screw (B) is for height adjustment of the top cover spreader and clearance between the spreader and the needles.

Fig 24: The proper distance between the top spreader and the needle plate is 8.5~9.5mm. (Refer to table 2 for recommended distance according to gauge size.)

Table 2

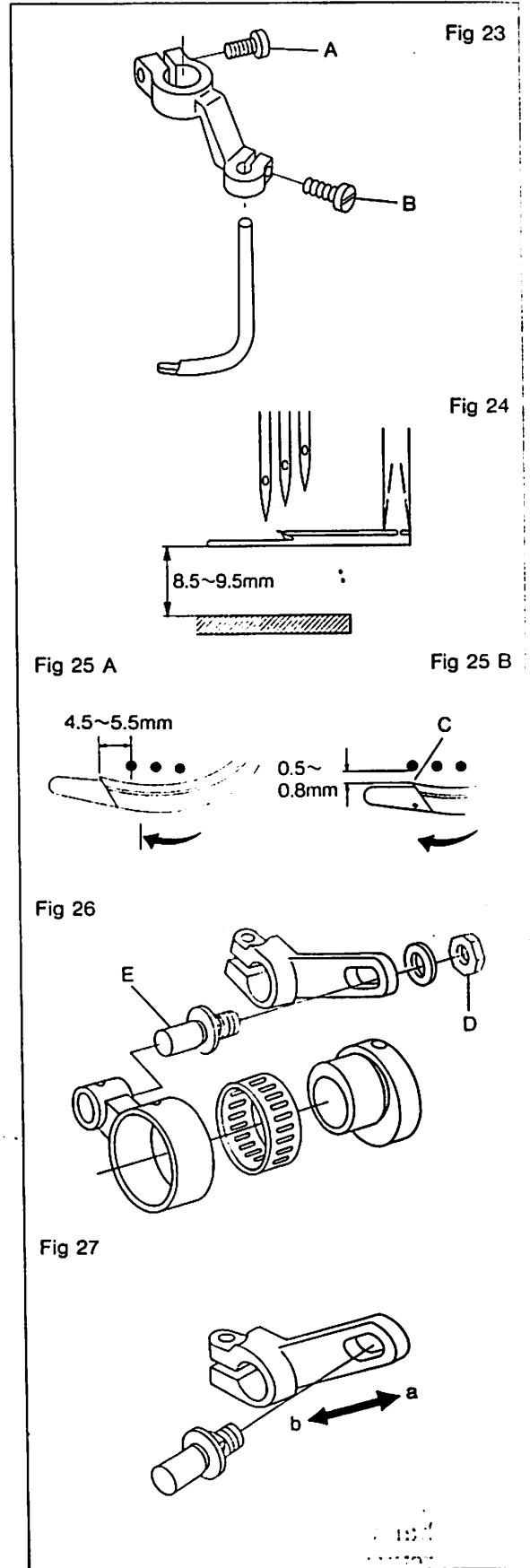
Gauge		Spreader Height
1/8"	3.2mm	9.5mm
5/23"	4.0mm	9.5mm
3/16"	4.8mm	9.5mm
7/32"	5.6mm	8.5mm
1/4"	6.4mm	8.5mm

Fig 25A: Set the tip of the thread hook 4.5 to 5.5mm to the left of the center of the left needle.

Fig 25B: Set the tip of the thread hook (C) 0.5 to 0.8mm from the front of the left needle.

Fig 26: To adjust spreader stroke loosen nut (D) and raise or lower the connecting pin (E).

Fig 27: To shorten spreader stroke for narrow gauge sizes move the connecting pin towards (a). To increase spreader stroke for wide gauge sizes and long stitch lengths move the connecting pin towards (b).

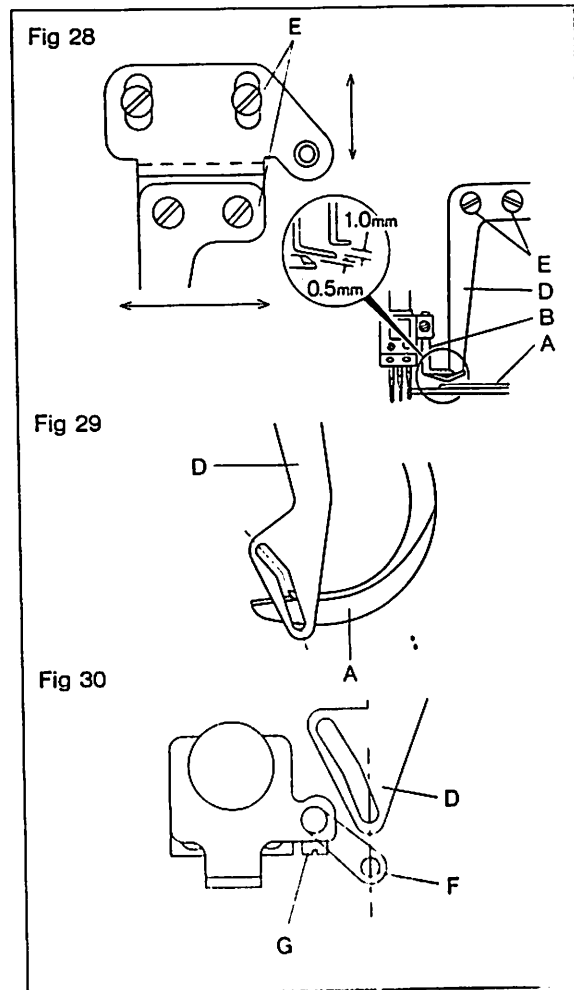


11. Top Cover Thread Guide (Refer to Fig 28~30)

Fig 28: Proper setting of the top cover thread guide (D) is 0.5~0.8mm above the spreader. The proper setting of eyelet (B) is 1.0mm above thread guide (D).

Fig 29: At the time the top cover looper is in its right-most position, the tip of the thread hook should be visible in the center of the slot of the thread guide (D).

Fig 30: Align the top cover thread eyelet (F) directly in front of top cover thread guide (D) slot. To do this, Loosen screw (G).

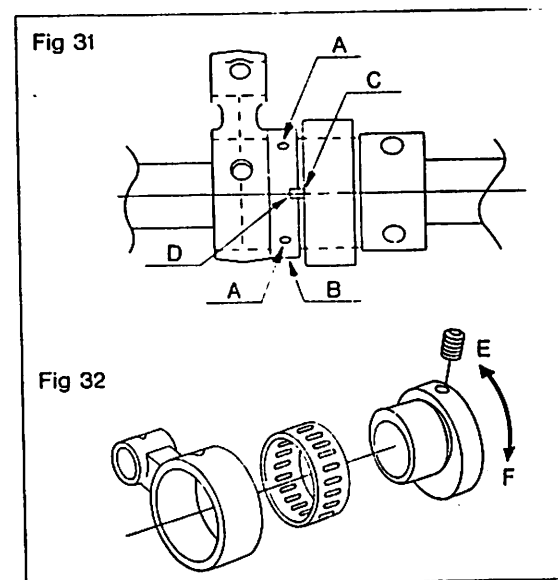


12. Top Cover Timing (Refer to Fig 31 & 32)

Fig 31: This diagram shows the proper alignment of the top cover spreader eccentric (B) and top shaft. For proper alignment it is recommended that timing mark (D) is aligned with mark (C) on top shaft.

Fig 32: To adjust the top cover timing, loosen screws (A) in Fig 31 and turn the eccentric towards (E) to advance the timing or towards (F) to retard the timing.

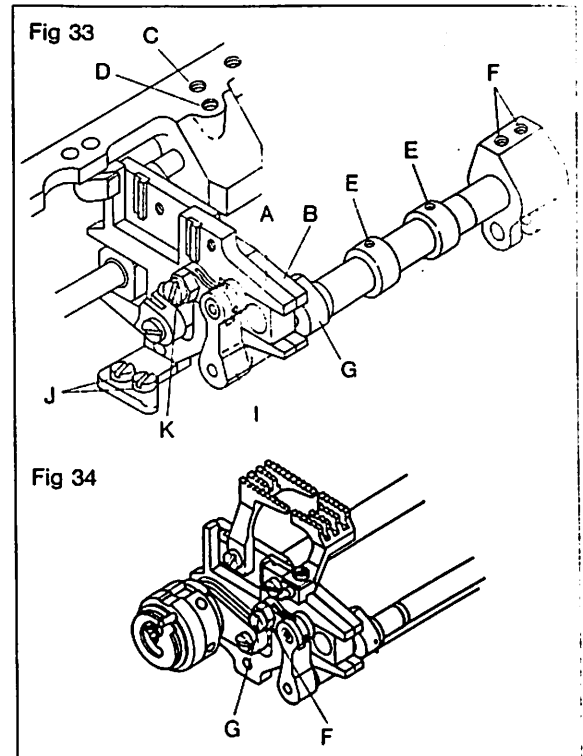
Note: The standard setting allows the needle bar to drop slightly before the spreader returns to the right.



13 Feed Dog Alignment (Refer to Fig 33 & 34)

Fig 33: Position for main feed bar (B) left-right is controlled by feed rocker guides held in place by screws (C & D), feed bar guide plate held by screws (J) and feed lifting shaft (G) held with collars (E) and feed lever screws (F). Front-back position of differential is regulated by feed shaft (I) held by screws (F).

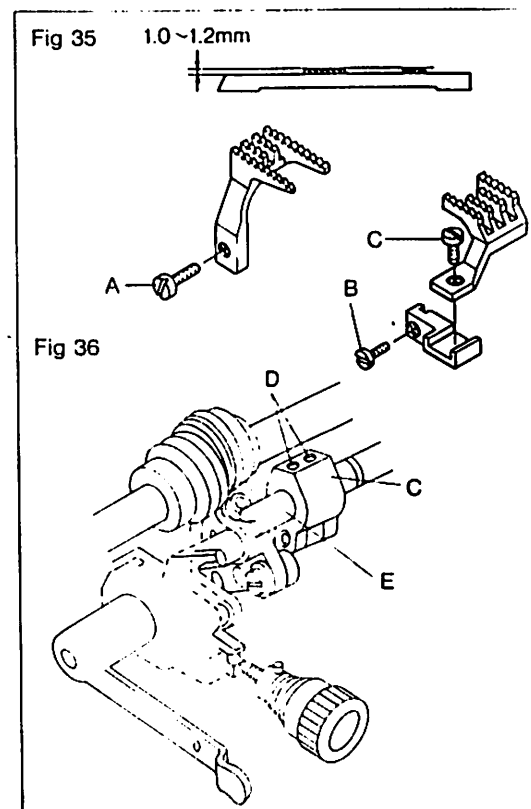
Fig 34: To center the front feed dog, loosen screw (G) and adjust eccentric (F) centering the feed dog for equal clearance at maximum differential feed length.



14 Feed Dog Height (Refer to Fig 35 & 36)

Fig 35: At their highest point, both the main and differential feed dogs should be no more than one tooth height (1.0~1.2mm) above the needle plate. To adjust the height of the rear feeder loosen screw (A). To adjust left-right position of differential feeder loosen screw (C).

Fig 36: It is important that the teeth of the rear feed dog and those of the front feed dog are at the same height above the needle plate. To adjust tilt of feeders loosen screws (D) in feed lifting lever (C) and adjust feed lifting shaft (E) for correct tilt angle.



15 Stitch Length (Refer to Fig 37~40)

Fig 37 & 38:

To adjust stitch length, press main stitch regulator button (A) and turn handwheel until button (A) drops into detent. Then turn the handwheel in the desired direction to increase/decrease main feed stitch length. The marks on the handwheel (S, M, L) will align with pin (B).

Table 3

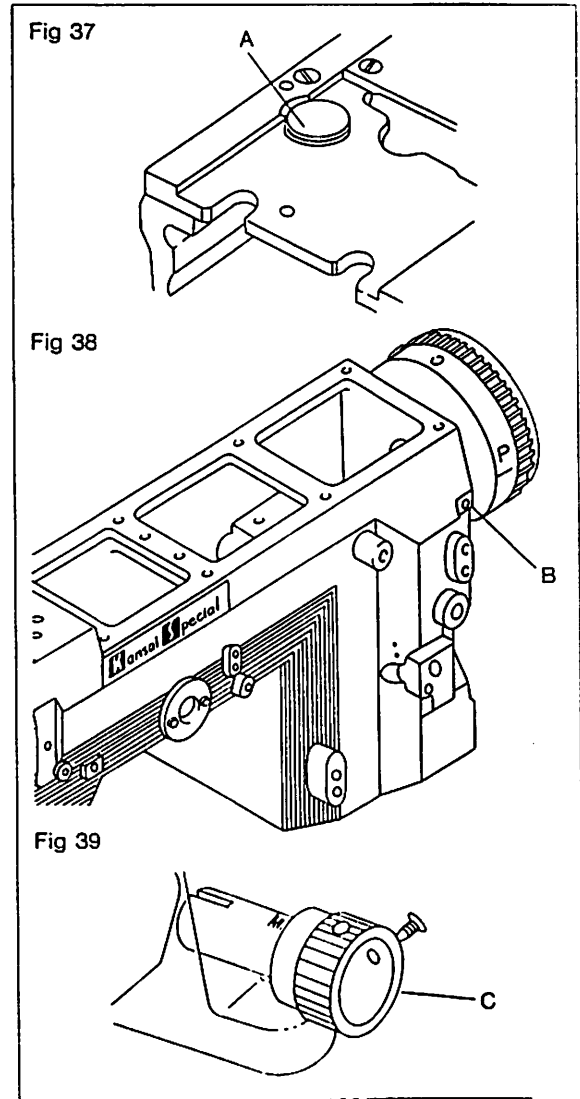
Stitch Length	Stitches Per Inch	Stitches Per 30 MM
3.6mm	7.0	8.0
2.4mm	10.5	12.5
1.4mm	18.0	21.0

Fig 39: Adjust (C) to obtain desired feed ratio. Loosen the handnut (E, Fig 40), turn (C) to desired position, and retighten handnut (E).

Table4-Differential Feed Ratio

Stitch Length	Maximum Feed Ratio	Minimum Feed Ratio
3.6mm	1:1.1	1:0.3
2.5mm	1:1.6	1:0.4
2.0mm	1:2.0	1:0.5
1.4mm	1:2.9	1:0.7

Fig 40: It is possible to vary the differential feed intermittently. To do this, connect a chain, fastened to a foot pedal, to the front of the lever. Next, loosen hand nut (E), set the upper limit of the lever with the adjusting knob (C). set the lower limit of the lever with the stopper cam (D). When working the differential intermittently, leave handnut (E) loose.



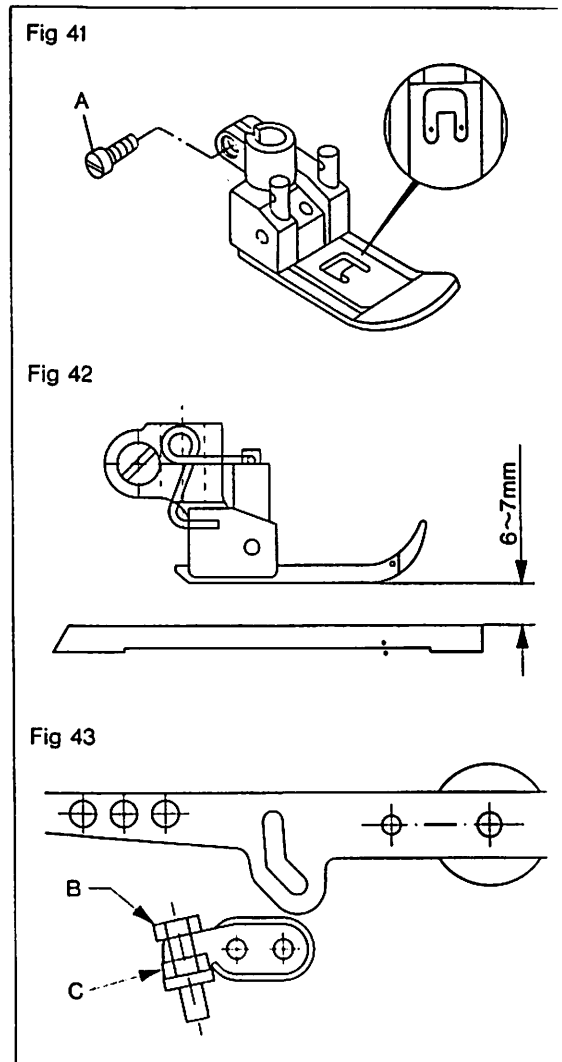
16 Presser Foot (Refer to Fig 41~43)

Fig 41: To ensure proper sewing the presser foot must be centered above the needle plate so the needle holes line up correctly with the needles. To adjust loosen screw (A).

Fig 42: The proper height for presser foot lift is 6~7mm above the needle plate.

Fig 43: To set presser foot lift height adjust (B) to stop foot lift lever at desired height and lock nut (C).

Note: During the sewing operation use only enough pressure on the presser foot to move the garment smoothly. Over pressuring the presser may cause damage to the garment and the machine.



17 Eyelet Adjustments (Refer to Fig 44~47)

Fig 44: Silicone Tank—The eyelet should be approximately 15~20mm above the center of screw (A).

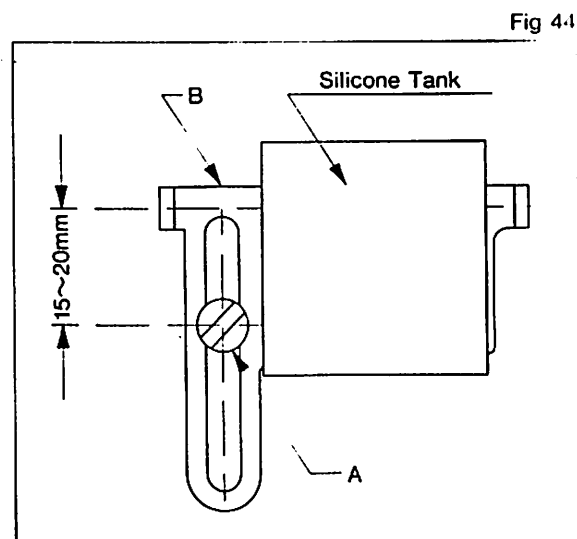


Fig 45: Needle Thread Take Up

The distance from the eyelets to the first screw (B) should be 55mm. To adjust, loosen screws (B) and (C) and move the eyelet left or right. Retighten (B) and (C). At the time the needles are in the lowest position, the take up should be horizontal. To adjust, loosen screw (D), and move the take up to the horizontal position. Retighten (D).

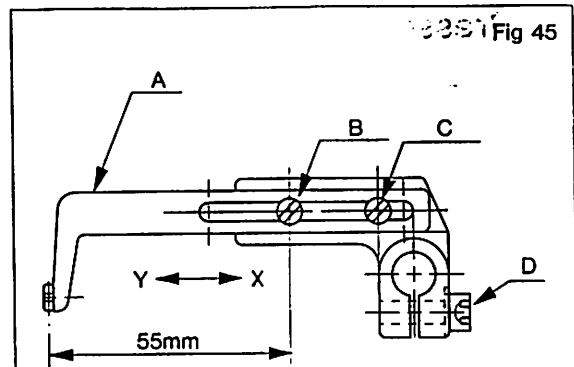


Fig 45

Fig 46: Take Up Timing Adjustment-To adjust take up timing remove top cover to gain access to collar and driving lever. The distance between collar and driving lever is 5.5mm.

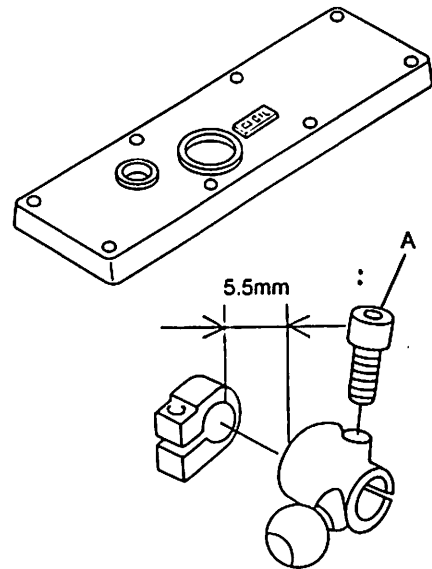


Fig 46

Fig 47: Needle Bar Thread Take Up

Standard Setting: When needle bar is as its lowest point, the eyelet (A) should be 2mm above the thread takeup (B). To decrease loop size lower the takeup. To increase loop size raise the takeup or place thread over both sides of thread takeup (B).

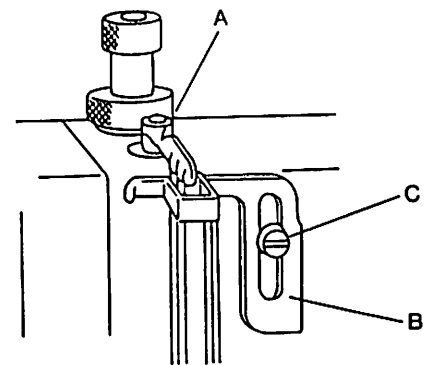


Fig 47

18 The Timing Belt

Note: There are 3 sizes of belts for RX-9000 series machines (A, B, C). During the life of the machine the belt may stretch and the machine may require another belt. Belt (A) is the largest and (B) and (C) are slightly smaller (1~2.5mm difference)

19 Steps To Replace The Timing Belt (Refer to Fig 48~52)

Fig 48: Remove the top cover and the oil pan from the machine. (Drain Oil before removing pan)

Fig 48

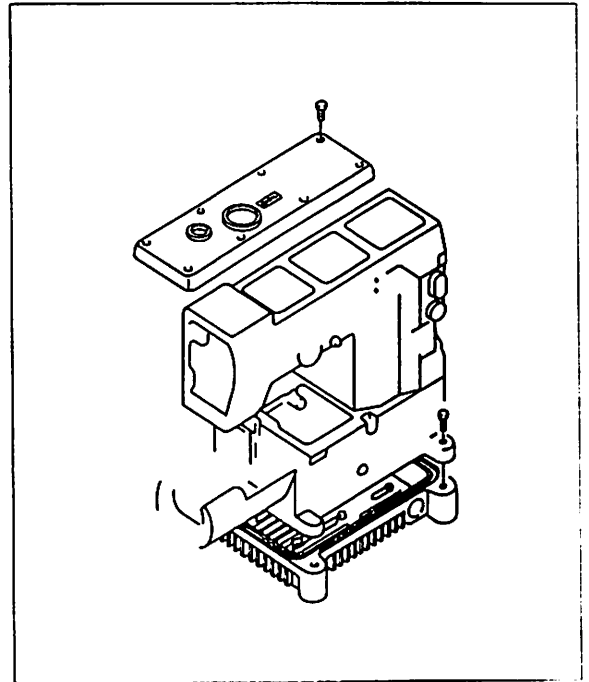


Fig 49: Loosen screws (A) and remove the upper shaft.

Fig 49

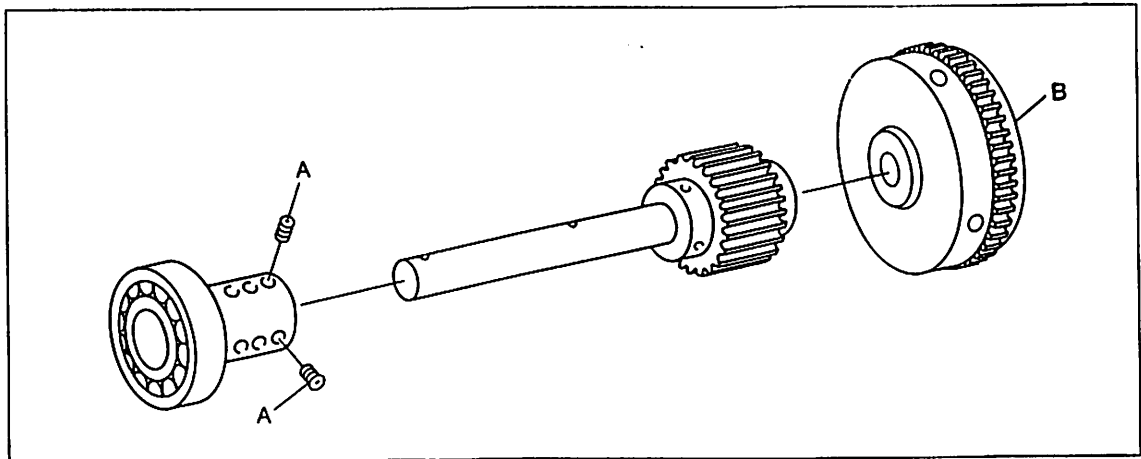


Fig 50: Loosen screw (J) remove pulley (I). Loosen screw (H) and remove fan (G). Remove screws (F) and remove flange (E). Loosen screws (C) and remove bearing (D).

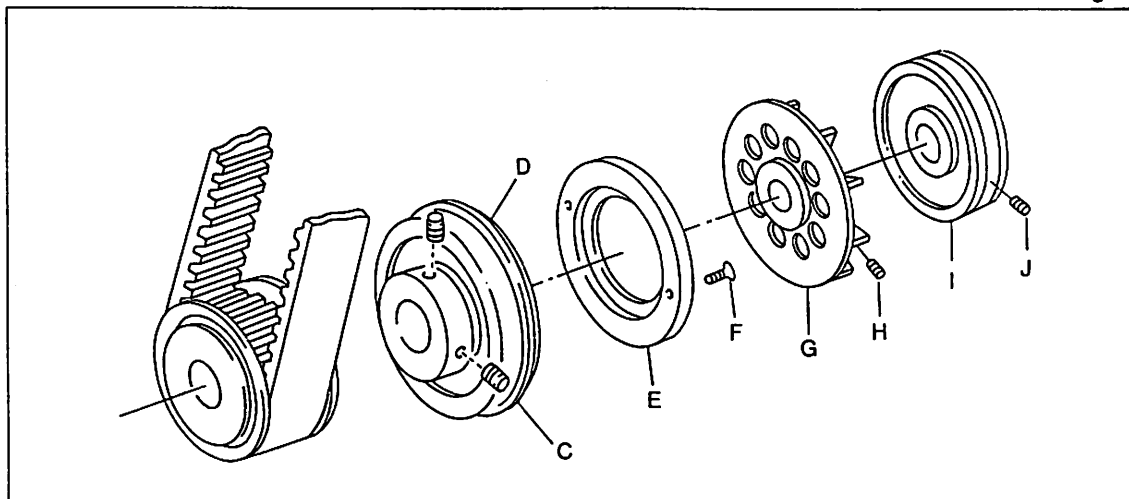


Fig 50

Fig 51: Remove the belt as shown.

Fig 52: Place the new timing belt on the timing pulley on the lower shaft.

Replace following parts:

- a. Replace the bearing, "D"
- b. Replace the flange, "E"
- c. Replace the fan, "G"
- d. Replace the pulley, "I"

Note : When the bearing is replaced on the lower shaft, be sure the top screw is set securely into the spot on the shaft.

Replace the upper shaft set into the machine by passing the shaft through the timing belt and inserting the end of the shaft into the top shaft union.

Turn the pulley until the looper is in its rightmost position.

Move the needle bar by hand until it is in its lowest position.

Turn the handwheel, being sure that neither the looper nor the needle bar move from their extreme positions, until the "P" mark on the handwheel is in-line with the brass stud ("O") on the machine.

Retighten the set screws ("A", Fig 49) on the top shaft union.

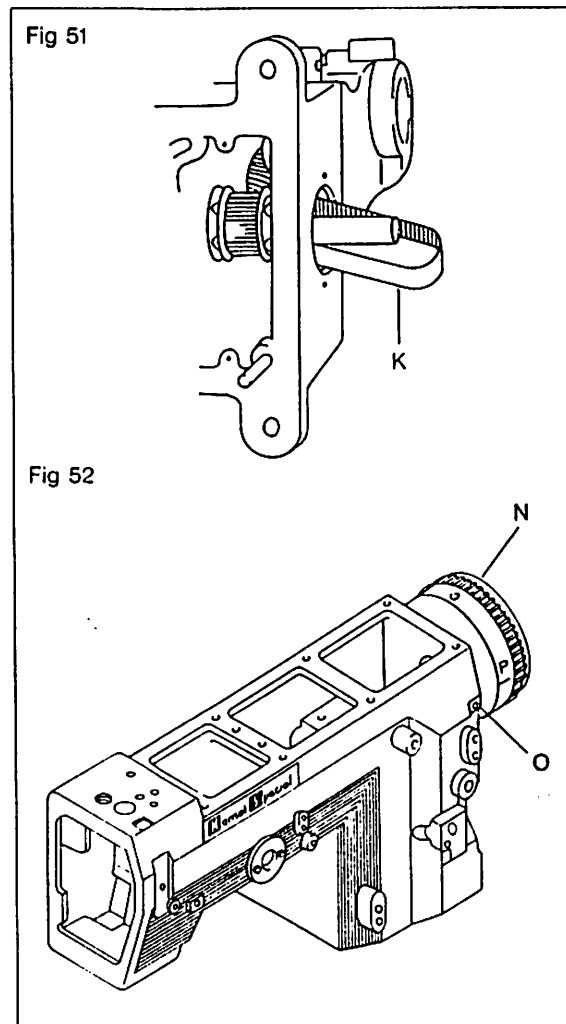


Fig 51

Fig 52